

PART 1

GENERAL PROVISIONS

RHA 1.1 SCOPE

Except as otherwise specifically provided, these regulations apply to all persons who receive, possess, use, transfer or acquire any radioactive material; provided, however, that nothing in these regulations shall apply to any person to the extent such person is subject to regulation by the United States Nuclear Regulatory Commission. Nothing in Part III of these regulations shall be interpreted as limiting the intentional exposure of patients to radiation for the purpose of medical diagnosis or therapy by persons licensed to practice one or more of the health professions within the authority granted to them by statute or regulation. These regulations shall become effective January 1, 1994.

RHA 1.2 DEFINITIONS. As used in these regulations:

1.2.1 “Accelerator-produced material” means any material made radioactive by a particle accelerator.

1.2.2 “Act” means Act No. 223, Atomic Energy and Radiation Control Act enacted by the 1967 Session South Carolina Legislature. (Section 13-7-40 et. Seq, 1976 S.C. Code of Law [as amended]).

1.2.3 “Agreement State” means any State with which the United States Nuclear Regulatory Commission has entered into an effective agreement under Section 274 b. of the Atomic Energy Act of 1954, as amended (73 Stat. 689).

1.2.4 “Airborne radioactive material” means any radioactive material dispersed in the air in the form of dusts, fumes, particulates, mists, vapors or gases.

1.2.5 “Airborne radioactivity area” means a room, enclosure, or area in which airborne radioactive materials, composed wholly or partly of licensed material, exist in concentrations—

- i) In excess of the derived air concentrations (DACs) specified in Appendix B, RHA 3.53, or...
- ii) To such a degree that an individual present in the area without respiratory protective equipment could exceed, during the hours an individual is present in a week, an intake of 0.6 percent of the annual limit on intake (ALI) or 12 DAC-hours.

1.2.6 “Byproduct material” means (1) any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material, and (2) the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content.

1.2.7 “Calendar quarter” means not less than 12 consecutive weeks nor more than 14 consecutive weeks. The first calendar quarter of each year shall begin in January; and subsequent calendar quarters shall be such that no day is included in more than one calendar quarter or omitted from inclusion within a calendar quarter. No licensee shall change the method observed by him of determining calendar quarters except at the beginning of a calendar year.

- 1.2.8 “Department” means the South Carolina Department of Health and Environmental Control.
- 1.2.9 “Depleted Uranium” means the source material uranium in which the isotope Uranium-235 is less than 0.711 weight percent of the total uranium present. Depleted uranium does not include special nuclear material.
- 1.2.10 “Dosimetry processor” means an individual or an organization that processes and evaluates personnel monitoring equipment in order to determine the radiation dose delivered to the equipment.
- 1.2.11 “High Radiation Area” means an area, accessible to individuals, in which radiation levels from radiation sources external to the body could result in an individual receiving a dose equivalent in excess of 0.1 rem (1 mSv) in 1 hour at 30 centimeters from the radiation source or 30 centimeters from any surface that the radiation penetrates.
- 1.2.12 “Human Use” means the intentional internal or external administration of radiation or radioactive material to any individual.
- 1.2.13 “Individual” means any human being.
- 1.2.14 “License” except where otherwise specified, means either a general license or specific license issued pursuant to these regulations as further defined in Part II of these regulations.
- 1.2.15 “Licensing State” means any State with regulations equivalent to the Suggested State Regulations for Control of Radiation.
- 1.2.16 “NARM” means any naturally occurring or accelerator-produced radioactive material. It does not include byproduct, source, or special nuclear material.
- 1.2.17 “Natural radioactivity” means radioactivity of naturally occurring nuclides.
- 1.2.18 “Occupational dose” means exposure of an individual to radiation (i) in a restricted area; or (ii) in the course of employment in which the individual’s duties involve exposure to radiation; provided, that occupational dose shall not be deemed to include any exposure of an individual to radiation for the purpose of medical diagnosis or medical therapy of such individual.
- 1.2.19 “Person” means any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group agency, political subdivision of this State, any other state or political subdivision or agency thereof, and any legal successor, representative, agent or agency of the foregoing, other than United States Nuclear Regulatory Commission, and other than Federal Government Agencies licensed by the United States Nuclear Regulatory Commission.
- 1.2.20 “Personnel monitoring equipment” means devices designed to be carried or worn by an individual for the purpose of measuring the dose which an individual receives (e.g. film badges, film rings, pocket chambers, pocket dosimeters, thermoluminescent dosimeters, etc.).
- 1.2.21 “Pharmacist” means an individual licensed by the State of South Carolina to compound and dispense drugs, prescriptions and poisons.

1.2.22 “Physician” means an individual licensed by the State of South Carolina to dispense drugs in the practice of medicine.

1.2.23 “Principal activities” means activities authorized by the license which are essential to achieving the purpose(s) for which the license was issued or amended. Storage during which no licensed material is accessed for use or disposal and activities incidental to decontamination or decommissioning are not principal activities.

1.2.24 “Radiation” means gamma rays, X-rays, alpha and beta particles, high-speed electrons, neutrons, and other nuclear particles, but not sound or radio waves, or visible, infrared, or ultra-violet light.

1.2.25 “Radiation Area” means any area, accessible to individuals, in which there exists ionizing radiation at such levels that the whole body could receive a dose equivalent in excess of 5 millirem in one hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates.

1.2.26 “Radiation Safety Officer” means any person directly responsible for protection against radiation.

1.2.27 “Radioactive material” means any material, solid, liquid, or gas, which emits radiation spontaneously.

1.2.28 “Research and development” means (i) theoretical analysis, exploration, or experimentation or (ii) the extension of investigative findings and theories of a scientific or technical nature into practical application for experimental purposes, including the experimental production and testing of models, devices, equipment, materials, and processes. “Research and development,” as used in these regulations, does not include the internal and external administration of radiation or radioactive materials to human beings.

1.2.29 “Restricted area” means any area to which access is controlled by the licensee for purposes of protection of individuals from exposure to radiation and radioactive materials. “Restricted area” shall not include any areas used for residential quarters, although a separate room or rooms in a residential building may be set apart as a restricted area.

1.2.30 “Sealed source” means radioactive material that is permanently bonded or fixed in a capsule or matrix designed to prevent release and dispersal of the radioactive material under the most severe conditions which are likely to be encountered in normal use and handling.

1.2.31 “Source material” means (1) uranium or thorium, or any combination thereof, in any physical or chemical form or (2) ores that contain by weight one-twentieth of one percent (0.05 percent) or more of (i) uranium, (ii) thorium, or (iii) any combination thereof. Source material does not include special nuclear material.

1.2.32 “Source of radiation” means any radioactive material, or any device or equipment emitting or capable of producing radiation.

1.2.33 “Special nuclear material in quantities not sufficient to form a critical mass” means uranium enriched in the isotope U-235 in quantities not exceeding 350 grams of contained U-235; Uranium-233 in quantities not exceeding 200 grams; plutonium in quantities not exceeding 200 grams; or any combination of them in accordance with the following formula: for each kind of special nuclear material,

determine the ratio between the quantity of that special nuclear material and the quantity specified above for the same kind of special nuclear material. The sum of such ratios for all of the kinds of special nuclear material in combination shall not exceed "1" (i.e., unity). For example, the following quantities in combination would not exceed the limitation and are within the formula, as follows:

$$\frac{175(\text{grams contained U-235})}{350} + \frac{50(\text{grams U-233})}{200} + \frac{50(\text{grams Pu})}{200} = 1$$

1.2.34 "Storage container" means a device in which sealed sources are transported or stored.

1.2.35 "Survey" means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of sources of radiation. When appropriate, such evaluation includes a physical survey of the location of materials and/or equipment and measurements of levels of radiation or concentrations of radioactive material present.

1.2.36 "These regulations" means Parts I, II, III, IV, V, VI, VII, VIII, IX, X, and XI of Regulation 61-63.

1.2.37 "Unrefined and unprocessed ore" means ore in its natural form prior to any processing such as grinding, roasting, beneficiating, or refining.

1.2.38 "Unrestricted area" means any area access to which is not controlled by the licensee for purposes of protection or individuals from exposure to radiation and radioactive materials, and any area used for residential quarters.

1.2.39 "Whole body" means the entire body, or a major portion thereof, or the head and trunk, or the active blood forming organs, or the lens of the eyes or the gonads. Whole body does not refer to the skin of the whole body.

1.2.40 Definitions of certain other words and phrases as used in these regulations are set forth in other sections.

RHA 1.3 UNITS OF RADIATION DOSE

1.3.1 "Dose" means the quantity of radiation absorbed, per unit of mass, by the body or by any portion of the body. When these regulations specify a dose during a period of time, the dose means the total quantity of radiation absorbed, per unit of mass, by the body or by any portion of the body during such period of time. Several different units of dose are in current use. Definitions of units as used in these regulations are set forth in the following paragraphs: 1.3.2 and 1.3.3.

1.3.2 The "rad" is a measure of the dose of any radiation to body tissues in terms of the energy absorbed per unit mass of the tissue. One rad is the dose corresponding to the absorption of 100 ergs per gram of tissue. (One millirad [mrad] = 0.001 rad).

1.3.3 The "rem" is a measure of the dose of any radiation to body tissue in terms of its estimated biological effect relative to a dose of one roentgen (R) of x-rays. (One millirem [mrem] = 0.0010 rem.) The relation of the rem to other dose units depends on the biological effect under consideration and upon the conditions of irradiation. For the purpose of these regulations, any of the following is considered to be equivalent to a dose of one rem:

1.3.3.1 A dose of 1 R due to x- or gamma radiation:

1.3.3.2 A dose of 1 rad due to x-, gamma, or beta radiation;

1.3.3.3 A dose of 0.1 rad due to neutrons or high energy protons;

1.3.3.4 A dose of 0.05 rad due to particles heavier than protons and with sufficient energy to reach the lens of the eye. If it is more convenient to measure the neutron flux, or equivalent, than to determine the neutron dose in rads, as provided in subparagraph 1.3.3.3 of this paragraph, one rem of neutron radiation may, for the purposes of these regulations, be assumed to be equivalent to 14 million neutrons per square centimeter incident upon the body; or if there exists sufficient information to estimate with reasonable accuracy the approximate distribution in energy of the neutrons, the incident number of neutrons per square centimeter equivalent to one rem may be estimated from the following table:

NEUTRON FLUX DOSE EQUIVALENTS

<u>Neutron Energy (mev)</u>	Number per square centimeter equivalent to a dose of 1 rem <u>(Neutrons/cm)²</u>	Average flux to deliver 100 millirem in 40 hrs. <u>(Neutrons/cm²/sec.)</u>
Thermal	970 x 10 ⁶	670
0.0001	720 x 10 ⁶	500
0.005	820 x 10 ⁶	570
0.02	400 x 10 ⁶	280
0.1	120 x 10 ⁶	80
0.5	43 x 10 ⁶	30
1.0	26 x 10 ⁶	18
2.5	29 x 10 ⁶	20
5.0	26 x 10 ⁶	18
7.5	24 x 10 ⁶	17
10.0	24 x 10 ⁶	17
10 to 30	14 x 10 ⁶	10

1.3.3.5 For determining doses specified in RHA 3.5 a dose from x- or gamma rays up to 3 Mev may, for purposes of these regulations, be assumed to be equivalent to the exposure measured in air at or near body surfaces in the region of the highest dose rate by a properly calibrated appropriate instrument.

RHA 1.4 UNITS OF RADIOACTIVITY

1.4.1 For the purposes of this part, activity is expressed in the special unit of curies (Ci)¹ or in the SI unit of becquerels (Bq), or their multiples, or disintegrations (transformations) per unit of time.

1.4.1.1 One becquerel = 1 disintegration per second (s⁻¹).

¹The unit of 'Ci' is the currently used abbreviation for 'curie' replacing the older unit 'c'. Where the unit 'c' occurs in the text or tables of these regulations, it is to be interpreted to mean 'Ci', likewise $\mu\text{c} = \mu\text{Ci}$ and $\text{mc} = \text{mCi}$.

1.4.1.2 One curie = 3.7×10^{10} disintegrations per second = 3.7×10^{10} becquerels = 2.22×10^{12} disintegrations per minute. Commonly used submultiples of the curie are the millicurie (mCi) and the microcurie (μCi). One mCi = .001 curie (Ci) = 3.7×10^7 dps or 2.22×10^9 dpm. One μCi = .000001 Ci = 2.22×10^6 dpm.

1.4.2 For purposes of these regulations, it may be assumed that the daughter activity concentrations in the following table are equivalent to an air concentration of 10^{-7} microcuries of Radon 222 per milliliter of air in equilibrium with the daughters RaA, RaB, RaC, and RaC' :

Alpha-emitting daughter activity collected per millimeter of air

Maximum time between collection and measurement (hours)*	Microcuries/ml	Total alpha disintegrations per minute per ml.
0.5	7.2×10^{-8}	0.16
1	4.5×10^{-8}	0.10
2	1.3×10^{-8}	0.029
3	0.3×10^{-8}	0.0067

*The duration of sample collection and the duration of measurement should be sufficiently short compared to the time between collection and measurement, as not to have a statistically significant effect upon the results.

RHA 1.5 RECORDS

1.5.1 Each licensee shall keep records showing the receipt, transfer, and disposal of all sources of radiation and any other records as specifically required by these regulations.

RHA 1.6 INSPECTIONS

1.6.1 Each licensee shall afford, at all reasonable times, the Department or its duly authorized representative, the opportunity to inspect sources of radiation and the premises and installation wherein such sources of radiation are used or stored.

1.6.2 Each licensee shall make available for inspection, to the Department, or its duly authorized representative, records maintained pursuant to these regulations.

RHA 1.7 TESTS AND SURVEYS

1.7.1 Each licensee shall make or cause to be made such surveys as are necessary for him to comply with these regulations.

1.7.2 Each licensee shall perform, upon instruction from the Department, or shall permit the Department to perform such reasonable tests as the Department deems appropriate and necessary including, but not limited to tests of: (1) Sources of radiation; (2) Location wherein sources of radiation are used or stored; (3) Radiation detection and monitoring instruments; (4) Other equipment and devices used in connection with utilization or storage of licensed sources of radiation.

RHA 1.8 IMPOUNDING

1.8.1 Sources of radioactive material shall be subject to impounding pursuant to the Act.

RHA 1.9 EXEMPTIONS FROM LICENSING

The following are exempt from the provisions of Part II, Licensing of Radioactive Materials:

1.9.1 **Carriers.** Common and contract carriers, freight forwarders and warehousemen operating within this State are exempt from these regulations to the extent that they transport or store sources of radiation in the regular course of their carriage for another or storage incident thereto.

1.9.2 **U.S. Department of Energy contractors and U.S. Nuclear Regulatory Commission contractors.** Any U.S. Department of Energy contractor or subcontractor and any U.S. Nuclear Regulatory Commission contractor or subcontractor of the following categories operating within the state is exempt from these regulations to the extent that such contractor or subcontractor under his contract receives, possesses, uses, transfers or acquires sources of radiation.

1.9.2.2 Prime contractors of the Department of Energy performing research in, or development, manufacture, storage, testing or transportation of, atomic weapons or components thereof;

1.9.2.3 Prime contractors of the Department of Energy using or operating nuclear reactors or other nuclear devices in a United States Government-owned vehicle or vessel; and

1.9.2.4 Any other prime contractor or subcontractor of the Department of Energy or of the Nuclear Regulatory Commission when the State and Nuclear Regulatory Commission jointly determine:

1.9.2.4.1 that the exemption of the prime contractor or subcontractor is authorized by law, and

1.9.2.4.2 that under the terms of the contract or subcontract, there is adequate assurance that the work thereunder can be accomplished without undue risk to the public health and safety.

RHA 1.10 EXEMPTIONS FROM REQUIREMENTS OF THESE REGULATIONS

1.10.1 The Department may, upon application thereof or upon its own initiative, grant such exemptions or exceptions from the requirements of these regulations as it determines are authorized by law and will not result in undue hazard to public health and safety or property.

RHA 1.11 ADDITIONAL REQUIREMENTS

1.11.1 The Department may, by rule, regulation, or order, impose upon any licensee such requirements in addition to those established in these regulations as it deems appropriate or necessary to minimize danger to public health and safety or property.

RHA 1.12 VIOLATIONS

1.12.1 An injunction or other court order may be obtained prohibiting any violation of any provision of the Act or any regulations or order issued thereunder. Any person who willfully violates any provision of the Act or any regulation or order issued thereunder shall be guilty of a misdemeanor and, upon conviction, may be punished by fine or imprisonment or both, as provided by law.

1.12.2 The Department is authorized to hold public hearings, compel attendance of witnesses, make findings of fact and determinations and to assess fines and civil penalties relating to violations of the provisions of the Act or any regulation, license or license condition, temporary or permanent order, or final determination of the Department. Any person violating any provision of the Act or any regulation, license, or license application, temporary or permanent order, or final determination of the Department is subject to the schedule of fines and civil penalties in RHA 1.16, Schedule A of this Part, provided that the

maximum penalty for any violation shall not exceed twenty five thousand dollars. Each day of noncompliance shall constitute a separate violation.

RHA 1.13 COMMUNICATIONS

1.13.1 All communications and reports concerning these regulations, and applications filed thereunder, should be addressed to the Department as its office located at:

**South Carolina Department of Health and
Environmental Control
Bureau of Radiological Health
2600 Bull Street
Columbia, South Carolina 29201**

RHA 1.14 FEES

1.14.1 Any person issued or granted a specific radioactive material license by the Department for the possession, use, storage, or distribution of radioactive material, or for the storage or disposal of radioactive material shall pay an annual license fee in accordance with a schedule of fees issued by the Department.

1.14.2 Payment of fees shall be made in accordance with the instructions of a "Statement of Fees Due" issued annually by the Department.

1.14.3 Persons failing to pay the fees required by paragraph 1.14.1 within thirty days after payment is due shall also pay a penalty of Fifty Dollars. If failure to pay the required fee continues for more than sixty days after payment is due, the licensee shall be notified by the Department by certified mail to be sent to his last known address that his license is revoked, and that any activities permitted under the authority of the license must cease immediately.

1.14.4 A license suspended for failure to pay the required fee under paragraph 1.14.3 may be reinstated by the Department upon payment of the required fee, the penalty of Fifty Dollars, and an additional penalty of One Hundred Dollars, if the licensee is otherwise in good standing and presents to the Department a satisfactory explanation for his failure to pay the required fee.

1.14.5 Fees required by paragraph 1.14.1 for a specific radioactive materials license which is issued during a calendar year shall be prorated for the remainder of that year based on the date of issuance of the license.

RHA 1.15 FINANCIAL ASSURANCES AND RECORDKEEPING FOR DECOMMISSIONING

1.15.1 The Department shall consider on a case-by-case basis, and require if found necessary before issuance of a license, financial assurances for the purpose of decommissioning or decontaminating facilities and the environment prior to closure and release for unrestricted use, or cleanup of the environment and facilities due to operations and accidental and unexpected releases of radioactive materials. The form and amount of such financial assurances shall be specifically determined by the Department.

1.15.2 Financial or surety arrangements generally acceptable to the Department include surety bonds, cash deposits, certificates of deposits, deposits of government securities, escrow accounts, irrevocable

letters or lines of credit, trust funds, and combinations of the above or such other types of arrangements as may be approved by the Department.

1.15.3 Notwithstanding the requirements of RHA 1.15.1 and 1.15.2 above, each applicant for a specific license of the types described in RHA 1.15.3.1 through 1.15.3.4 shall submit a decommissioning funding plan as described in RHA 1.15.11.

1.15.3.1 Authorizing the possession and use of unsealed byproduct material of half-life greater than 120 days and in quantities exceeding 105 times the applicable quantities set forth in Appendix C, RHA 3.54 or when a combination of isotopes is involved if R divided by 105 is greater than 1 (unity rule), where R is defined here as the sum of the ratios of the quantity of each isotope to the applicable value in Appendix C, RHA 3.54.

1.15.3.2 Authorizing the possession and use of sealed sources or plated foils of half-life greater than 120 days and in quantities exceeding 1012 times the applicable quantities set forth in Appendix C, RHA 3.54 (or when a combination of isotopes is involved if R , as defined in RHA 1.15.3.1, divided by 1012 is greater than 1).

1.15.3.3 Authorizing the possession and use of more than 100 millicuries of source material in a readily dispersible form.

1.15.3.4 Authorizing the possession of unsealed special nuclear material in quantities exceeding 105 times the applicable quantities set forth in Appendix C, RHA 3.54 or when a combination of isotopes is involved if R divided by 105 is greater than 1 (unity rule), where R is the sum of the ratios of the quantity of each isotope to the applicable value in Appendix C, RHA 3.54.

1.15.4 Each applicant for a specific license as described in 1.15.3 and in quantities specified in RHA 1.15.10 of this section shall either---

1.15.4.1 Submit a decommissioning funding plan as described in RHA 1.15.11 of this section; or

1.15.4.2 Submit a certification that financial assurance for decommissioning has been provided in the amount prescribed by RHA 1.15.10 of this section using one of the methods described in RHA 1.15.12 of this section. For an applicant, this certification may state that the appropriate assurance will be obtained after the application has been approved and the license issued but prior to the receipt of licensed material. If the applicant defers execution of the financial instrument until after the license has been issued, a signed original of the financial instrument obtained to satisfy the requirements of RHA 1.15.12 must be submitted to the Department before receipt of licensed material. If the applicant does not defer execution of financial instrument, the applicant shall submit to the Department, as part of the certification, a signed original of the financial instrument obtained to satisfy the requirements of RHA 1.15.12.

1.15.5 Each holder of a specific license issued on or after the effective date of these regulations, which is of a type described in RHA 1.15.3 or 1.15.4 of this section, shall provide financial assurance for decommissioning in accordance with RHA 1.15.12.

1.15.6 Each holder of a specific license of a type described in RHA 1.15.3 of this section shall submit a decommissioning funding plan as described in RHA 1.15.11 or a certification of financial assurance for decommissioning in an amount at least equal to \$1,125,000 in accordance with the criteria set forth in this section. If the licensee submits the certification of financial assurance rather than a decommissioning funding plan, the licensee shall include a decommissioning funding plan in any application for license renewal.

1.15.7 Each holder of a specific license of a type described in RHA 1.15.4 shall submit a decommissioning funding plan as described in RHA 1.15.11 or a certification of financial assurance for decommissioning in accordance with RHA 1.15.12.

1.15.8 Any licensee who has submitted an application for renewal of license in accordance with RHA 2.12 shall provide financial assurance for decommissioning in accordance with RHA 1.15.3 and RHA 1.15.4.

1.15.9 Waste collectors and waste processors, as defined in RHA 3.2, must provide financial assurance in an amount based on a decommissioning funding plan as described in RHA 1.15.11. The decommissioning funding plan must include the cost of disposal of the maximum amount (curies) of radioactive material permitted by license, and the cost of disposal of the maximum quantity, by volume, of radioactive material which could be present at the licensee's facility at any time, in addition to the cost to remediate the licensee's site to meet the license termination criteria of RHA 2.11. The decommissioning funding plan must be submitted by June 30, 2007.

TABLE I

1.15.10 Required Amounts of Financial Assurance for Decommissioning by Quantity of Material.

Licensees required to submit the \$1,125,000 must do so by June 30, 2007. Licensees required to submit \$113,000 or \$225,000 amount must do so by June 30, 2007. Licensees having possession limits exceeding the upper bounds of this table must base financial assurance on a decommissioning funding plan.

(i) greater than 10^4 but less than or equal to 10^5 times the applicable quantities of Appendix C, RHA 3.54 in unsealed form. (For a combination of isotopes, if R, as defined in RHA 1.15.3.1, divided by 10^4 is greater than 1 but R divided by 10^5 is less than or equal to 1.).....\$1,125,000

(ii) greater than 10^3 but less than or equal to 10^4 times the applicable quantities of Appendix C, RHA 3.54 in unsealed form. (For a combination of isotopes, if R, as defined in RHA 1.15.3.1, divided by 10^3 is greater than 1 but R divided by 10^4 is less than or equal to 1.).....\$225,000

(iii) greater than 10^{10} times the applicable quantities of Appendix C, RHA 3.54 in sealed sources or plated foils. (For a combination of isotopes, if R, as defined in RHA 1.15.3.1, divided by 10^{10} is greater than 1, but R divided by 10^{12} is less than or equal to 1.).....\$113,000

1.15.11 Each decommissioning funding plan must contain a cost estimate for decommissioning and a description of the method of assuring funds for decommissioning from RHA 1.15.12, including means of adjusting cost estimates and associated funding levels periodically over the life of the facility. Cost estimates must be adjusted at intervals not to exceed 3 years. The decommissioning funding plan must also contain a certification by the licensee that financial assurance for decommissioning has been provided in the amount of the cost estimate for decommissioning and a signed original of the financial instrument obtained to satisfy the requirements of RHA 1.15.12.

1.15.12 Financial assurance for decommissioning must be provided by one or more of the following methods:

1.15.12.1 Prepayment. Prepayment is the deposit prior to the start of the operation into an account segregated from licensee assets and outside the licensee's administrative control of cash or liquid assets

such that the amount of funds would be sufficient to pay decommissioning costs. Prepayment may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities.

1.15.12.2 A surety method, insurance, or other guarantee method. These methods guarantee that decommissioning costs will be paid should the licensee default. A surety method may be in the form of a surety bond, letter of credit, or line of credit. A parent company guarantee of funds for decommissioning costs based on a financial test may be used if the guarantee and test are as contained in RHA 1.17, Appendix A to this part. A parent company guarantee may not be used in combination with other financial methods to satisfy the requirements of this section. A guarantee of funds by the applicant or licensee for decommissioning costs based on a financial test may be used if the guarantee and test are as contained in Appendix B of this part. A guarantee by the applicant or licensee may not be used in combination with any other financial methods to satisfy the requirements of this section or in any situation where the applicant or licensee has a parent company holding majority control of the voting stock of the company. Any surety method or insurance used to provide financial assurance for decommissioning must contain the following conditions:

(i) The surety method or insurance must be open-ended or, if written for a specified term, such as five years, must be renewed automatically unless 90 days or more prior to the renewal date, the issuer notifies the Department, the beneficiary, and the licensee of its intention not to renew. The surety method or insurance must also provide that the full face amount be paid to the beneficiary automatically prior to the expiration without proof of forfeiture if the licensee fails to provide a replacement acceptable to the Department within 30 days after receipt of notification of cancellation.

(ii) The surety method or insurance must be payable to a trust established for decommissioning costs. The trustee and trust must be acceptable to the Department. An acceptable trustee includes an appropriate State or Federal government agency or an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or State agency.

(iii) The surety method or insurance must remain in effect until the Department has terminated the license.

1.15.12.3 An external sinking fund in which deposits are made at least annually, coupled with a surety method or insurance, the value of which may decrease by the amount being accumulated in the sinking fund. An external sinking fund is a fund established and maintained by setting aside funds periodically in an account segregated from licensee assets and outside the licensee's administrative control in which the total amount of funds would be sufficient to pay decommissioning costs at the time termination of operation is expected. An external sinking fund may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities. The surety or insurance provisions must be stated in RHA 1.15.12.2 of this section.

1.15.12.4 In the case of Federal, State or local government licensees, a statement of intent containing a cost estimate for decommissioning or an amount backed on the Table in RHA 1.15.10 of this section, and indicating that funds for decommissioning will be obtained when necessary.

1.15.13 Each person licensed under this part or Parts II, IV or V of these regulations shall keep records of information important to the decommissioning of a facility in an identified location until the site is released for unrestricted use. Before licensed activities are transferred or assigned in accordance with RHA 2.10.2, licensees shall transfer all records described in this paragraph to the new licensee. In this case, the new licensee will be responsible for maintaining these records until the license is terminated. If records important to the decommissioning of a facility are kept for other purposes, reference to these

records and their locations may be used. Information the Department considers important to decommissioning consists of:

1.15.13.1 Records of spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment, or site. These records may be limited to instances when contamination remains after any cleanup procedures or when there is reasonable likelihood that contaminants may have spread to inaccessible areas as in the case of possible seepage into porous materials such as concrete. These records must include any known information on identification of involved nuclides, quantities, forms, and concentrations.

1.15.13.2 As-built drawings and modifications of structures and equipment in restricted areas where radioactive materials are used and/or stored, and of locations of possible inaccessible contamination such as buried pipes, which may be subject to contamination. If required drawings are referenced, each relevant document need not be indexed individually. If drawings are not available, the licensee shall substitute appropriate records of available information concerning these areas and locations.

1.15.13.3 Except for areas containing sealed sources (provided the sources have not leaked or not contamination remains after any leak), or where licensed material has been used in a device or component and is intact (for example depleted uranium used only for shielding or as penetrators in unused munitions), or byproduct materials having only half-lives of less than 65 days, a list contained in a single document and updated every 2 years of the following:

1.15.13.3.1 All areas designated and formerly designated restricted areas as defined RHA 1.2;

1.15.13.3.2 All areas outside of restricted areas that required documentation under RHA 1.15;

1.15.13.3.3 All areas outside of restricted areas where current and previous wastes have been buried as documented under RHA 3.41; and

1.15.13.3.4 All areas outside of restricted areas, which contain material such that, if the license expired, the licensee would be required to either decontaminate the area to unrestricted levels or apply for approval for disposal under RHA 3.28.

1.15.13.4 Records of the cost estimate performed for the decommissioning funding plan or of the amount certified for decommissioning, and records of the funding method used for assuring funds if either a funding plan or certification is used.

RHA 1.16 SCHEDULE OF CIVIL PENALTIES

A. Severity I Category Level: Not less than Twenty Thousand Dollars, nor more than Twenty-Five Thousand Dollars, per violation.

B. Severity II Category Level: Not less than Ten Thousand Dollars, nor more than Twenty Thousand Dollars, per violation.

C. Severity III Category Level: Not less than Five Thousand Dollars, nor more than Ten Thousand Dollars, per violation.

D. Severity IV Category Level: Not less than Two Thousand Dollars, nor more than Five Thousand Dollars, per violation.

E. Severity V Category Level: Not less than One Thousand Dollars, nor more than Two Thousand Dollars, per violation.

F. Severity VI Category Level: Not more than One Thousand Dollars, per violation.

SCHEDULE OF SEVERITY CATEGORIES

I. Health Physics and Radiation Protection:

A. Severity I – Very Significant violations involving:

1. Single exposure or a quarterly accumulation of exposures to a worker in excess of 25 rems of radiation to the whole body, 150 rems to the skin of the whole body, or 375 rems to the feet, ankles, hands, or forearms, when such exposures are contrary to the provisions of RHA 3.5, Title A;

2. Annual whole body exposure of a member of the public in excess of 2.5 rems of radiation;

3. Release of radioactive material to an unrestricted area in excess of ten times the limits of RHA 3.53, Appendix B, Table 2, Title A;

4. Disposal of licensed material in quantities or concentrations in excess of ten times the limits of RHA 3.39, Title A; or

5. Exposure of a worker in restricted areas in excess of ten times the limits of RHA 3.5, Title A.

B. Severity II – Very Significant violations involving:

1. Single exposure or a quarterly accumulation of exposures to a worker in excess of 5 rems of radiation to the whole body, 30 rems to the skin of the whole body, or 75 rems to the feet, ankles, hand or forearms, when such exposures are contrary to the provisions of RHA 3.5, Title A;

2. Annual whole body exposure of a member of the public in excess of 0.5 rems of radiation;

3. Release of radioactive material to an unrestricted area in excess of five times the limits of RHA 3.53, Appendix B, Table 2, Title A;

4. Failure to make an immediate notification as required by RHA 3.45.1.1 or 3.45.1.2, Title A;

5. Disposal of licensed material in quantities or concentrations in excess of five times the limits of RHA 3.29, Title A; or

6. Exposure of a worker in restricted areas in excess of five times the limits of RHA 3.5, Title A;

C. Severity III – Significant violations involving:

1. Single exposure or a quarterly accumulation of exposures to a worker in excess of 3 rems of radiation to the whole body, 7.5 rems to the skin of the whole body, or 18.75 rems to the feet, ankles, hand or forearms, when such exposures are contrary to the provisions of RHA 3.5, Title A;

2. A radiation level in an unrestricted area that exceeds 100 millirems/hour for a one-hour period;

3. Failure to make a 24-hour notification as required by RHA 3.45.2, Title A, or an immediate notification required by RHA 3.44.1.1, Title A;

4. Substantial potential for an exposure or release in excess of limits specified in Part III, Title A, where such exposure or release does not occur (e.g., entry into high radiation areas in the vicinity of exposed radiographic sources without having performed an adequate survey, failure to provide security or prevent unauthorized entry into a high radiation area, operation of a radiation facility with a nonfunctioning interlock systems);

5. Release of radioactive material to an unrestricted area in excess of the limits of RHA 3.53, Appendix B, Table 2, Title A;

6. Improper disposal of licensed material not covered in Severity Levels I or II;

7. Exposure of a worker in restricted areas in excess of the limits of RHA 3.5, Title A;

8. Release for unrestricted use of radioactive material or contaminated equipment which poses a realistic potential for exposure to members of the public, or failure to decontaminate facility areas as required;

9. Cumulative worker exposure above regulatory limits when such cumulative exposure reflects a programmatic, rather than an isolated weakness in radiation protection;

10. Conduct of licensee activities by a technically unqualified person or person not meeting training requirements specified by regulation or license conditions; or

11. Failure to control or provide security for licensed material.

D. Severity IV – Violations involving:

1. Failure to follow requirements not covered in Severity Levels I, II, or III, that substantially reduces the margin of safety (e.g., inadequate survey, incomplete dosimetry, improper posting, failure to maintain proper security);

2. A radiation level in an unrestricted area such that an individual may receive greater than 2 millirems in a one hour period or 100 millirems in any seven consecutive days; or

3. Failure to make a 30-day written notification required by RHA 3.44.1.2 or 3.46.1, Title A.

E. Severity V – Violations involving any other matter involving failure to follow procedures, rules and regulations or license conditions, that has other than minor safety or environmental significance.

F. Severity IV – Violations that have minor safety or environmental significance.

II. Radioactive Materials Operations:

A. Severity I – Very significant violations involving:

1. A technically unqualified or unauthorized person conducting a licensee activity that results in radiation levels, contamination levels, or releases that exceed ten times regulatory limits or limits specified in the license;

2. Use of unauthorized equipment that results in radiation levels, contamination levels, or releases that exceed ten times regulatory limits or limits specified in the license;

3. Possession or use of unauthorized radioactive materials requiring a license that results in radiation levels, contamination levels, or releases that exceed ten times regulatory limits;

4. Failure to perform required surveys, tests, or evaluations, or to institute required safety precautions that results in radiation levels, contamination levels, or releases that exceed ten times regulatory limits or limits specified in the license; or:

5. A system designed to prevent or mitigate a serious safety event being inoperable when actually required to perform its design function.

B. Severity II – Violations involving:

1. A technically unqualified or unauthorized person conducting a licensee activity that results in radiation levels, contamination levels, or releases that exceed five times regulatory limits, or limits specified in the license;

2. Possession or use of unauthorized equipment or material in the conduct of licensed activities that results in radiation levels, contamination levels, or releases that exceed five times regulatory limits specified in the license;

3. Possession or use of unauthorized radioactive materials requiring a license that results in radiation levels, contamination levels, or releases that exceed five times regulatory limits.

4. Failure to perform required surveys, tests, or evaluations that results in radiation levels, contamination levels or releases that exceed five times regulatory limits, or limits specified in the license; or

5. Failure to make required initial notifications associated with Severity Level I or II violations.

C. Severity III – Violations involving:

1. Failure to control access to licensed materials for radiation purposes as specified by regulatory requirements;

2. Possession or use of unauthorized equipment, materials or facilities in the conduct of licensed activities;

3. Possession or use of unauthorized radioactive materials requiring a license;

4. Use of radioactive materials on humans where such use is not authorized;

5. Conduct of licensee activities by a technically unqualified or unauthorized person;

6. Degradation of a system designed to prevent or mitigate a serious safety event;

7. Failure to provide adequate measures to prevent loss or theft of radioactive materials; or

8. Radiation levels, contamination levels, or releases that exceed regulatory limits or limits specified in the license.

D. Severity IV – Violations involving:

1. Failure to maintain patients containing Cobalt-60, Cesium-137, Iridium-192, or Radium implants hospitalized, or failure to conduct and record surveys of such patients prior to release;

2. Failure to conduct required leakage or contamination tests; or

3. Use of improperly calibrated survey equipment or counting equipment.

E. Severity V – Other violations such as failure to follow procedures, rules and regulations, or license conditions that have other than minor safety or environmental significance.

F. Severity VI – Violations that have minor safety or environmental significance.

III. Transportation of Radioactive Materials:

For purposes of this Schedule, radioactive material transported as radioactive waste into or within South Carolina is subject to the provisions of the S.C. Department of Health and Environmental Control Regulation 61-83, Regulations for the Transportation of Radioactive Waste into or within South Carolina. Radioactive materials, other than radioactive wastes as defined in S.C. Department of Health and Environmental Control Regulation 61-83, are subject to the following Severity categories:

A. Severity I – Very significant violations of State and Federal regulations involving:

1. Annual whole body exposure of a member of the public in excess of 2.5 rem of radiation; or

2. Breach of package integrity resulting in surface contamination or external radiation levels in excess of ten times the Nuclear Regulatory Commission (NRC) or Department of Transportation (DOT) limits.

B. Severity II – Very significant violations of State and Federal regulations involving:

1. Annual whole body exposure of a member of the public in excess of 0.5 rem of radiation;

2. Breach of package integrity resulting in surface contamination or external radiation levels less than ten times in excess of NRC or DOT limits.

3. Surface contamination or external radiation levels in excess of three times NRC or DOT limits that did not result from a breach of package integrity; or

4. Failure to make required initial notifications associated with Severity Level I or II violations.

C. Severity III – Violations of State and Federal regulations involving:

1. Breach of package integrity;

2. Surface contamination or external radiation levels in excess of but less than a factor of three above NRC or DOT requirements that did not result from a breach of package integrity;

3. Any noncompliance with labeling, placarding, shipping paper, packaging, loading or other requirements that could reasonably result in the following:

- a. Improper identification of the type, quantity, or form of material;
- b. Failure of the carrier or recipient to exercise adequate controls;
- c. Substantial potential for personnel exposure or contamination; or

4. Failure to make required initial notification associated with Severity III violations.

D. Severity IV – Violation of State and Federal regulations involving any noncompliance of package selection or preparation requirements which does not result in a breach of package integrity or surface contamination, or external radiation levels in excess of NRC or DOT requirements.

E. Severity V – Other violations such as failure to follow procedures or rules and regulations that have other than minor safety or environmental significance.

F. Severity VI – Violations that have minor safety or environmental significance.

APPENDIX A

RHA 1.17 CRITERIA RELATING TO USE OF FINANCIAL TESTS AND PARENT COMPANY GUARANTEES FOR PROVIDING REASONABLE ASSURANCE OF FUNDS FOR DECOMMISSIONING

I. INTRODUCTION

An applicant or licensee may provide reasonable assurance of the availability of funds for decommissioning based on obtaining a parent company guarantee that funds will be available for decommissioning costs and on a demonstration that the parent company passes a financial test. This appendix establishes criteria for passing the financial test and for obtaining the parent company guarantee.

II. FINANCIAL TEST

A. To pass the financial test, the parent company must meet the criteria of either paragraph A-1 or A-2 of this section:

- 1. The parent company must have:
 - (i) Two of the following three ratios: A ratio of total liabilities to net worth less than 2.0; a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 0.1; and a ratio of current assets to current liabilities greater than 1.5; and
 - (ii) Net working capital and tangible net worth each at least six times the current decommissioning cost estimates (or prescribed amount if a certification is used); and
 - (iii) Tangible net worth of at least \$10 million; and
 - (iv) Assets located in the United States amounting to at least 90 percent of total assets or at least six times the current decommissioning cost estimates (or prescribed amount if a certification is used).

- 2. The parent company must have:

- (i) A current rating for its most recent bond issuance of AAA, AA, A, or BBB as issued by Standard and Poor's or Aaa, Aa, A, or Baa as issued by Moody's; and
- (ii) Tangible net worth at least six times the current decommissioning cost estimate (or prescribed amount if a certification is used); and
- (iii) Tangible net worth of at least \$10 million; and
- (iv) Assets located in the United States amounting to at least 90 percent of total assets or at least six times the current decommissioning cost estimates (or prescribed amount if certification is used).

B. The parent company's independent certified public accountant must have compared the data used by the parent company in the financial test, which is derived from the independently audited, year end financial statements for the latest fiscal year, with the amounts in such financial statement. In connection with that procedure the licensee shall inform the Department within 90 days of any matters coming to the auditor's attention which cause the auditor to believe that the data specified in the financial test should be adjusted and that the company no longer passes the test.

C. 1. After the initial financial test, the parent company must repeat the passage of the test within 90 days after the close of each succeeding fiscal year.

2. If the parent company no longer meets the requirements of paragraph A of this section, the licensee must send notice to the Department of intent to establish alternate financial assurance as specified in the Department's regulations. The notice must be sent by certified mail within 90 days after the end of the fiscal year for which the year end financial data show that the parent company no longer meets the financial test requirements. The licensee must provide alternate financial assurance within 120 days after the end of such fiscal year.

III. PARENT COMPANY GUARANTEE

The terms of a parent company guarantee which an applicant or licensee obtains must provide that:

A. The parent company guarantee will remain in force unless the guarantor sends notice of cancellation by certified mail to the licensee and the Department. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the licensee and the Department, as evidenced by the return receipts.

B. If the licensee fails to provide alternate financial assurance as specified in the Department's regulations within 90 days after receipt by the licensee and Department of a notice of cancellation of the parent company guarantee from the guarantor, the guarantor will provide such alternative financial assurance in the name of the licensee.

C. The parent company guarantee and financial test provisions must remain in effect until the Department has terminated the license.

D. If a trust is established for decommissioning costs, the trustee and trust must be acceptable to the Department. An acceptable trustee includes an appropriate State or Federal Government agency or an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency.

APPENDIX B

RHA 1.18 CRITERIA RELATING TO USE OF FINANCIAL TESTS AND SELF GUARANTEES FOR PROVIDING REASONABLE ASSURANCE OF FUNDS FOR DECOMMISSIONING

I. INTRODUCTION

An applicant or licensee may provide reasonable assurance of the availability of funds for decommissioning based on furnishing its own guarantee that funds will be available for decommissioning costs and on a demonstration that the company passes the financial test of Section II of this appendix. The terms of the self-guarantee are in Section III of this appendix. This appendix establishes criteria for passing the financial test for the self-guarantee and establishes the terms for a self-guarantee.

II. FINANCIAL TEST

A. To pass the financial test, a company must meet all of the following criteria:

1. Tangible net worth at least 10 times the total current decommissioning cost estimate (or the current amount required if certification is used) for all decommissioning activities for which the company is responsible as self-guaranteeing licensee and as parent-guarantor.

2. Assets located in the United States amounting to at least 90 percent of total assets or at least 10 times the total current decommissioning cost estimate (or the current amount required if certification is used) for all decommissioning activities for which the company is responsible as self-guaranteeing licensee and as parent-guarantor.

3. A current rating for its most recent bond issuance of AAA, AA, A as issued by Standard and Poors (S&P), or Aaa, Aa, or A as issued by Moodys.

B. To pass the financial test, a company must meet all of the following additional requirements:

1. The company must have a least one class of equity securities registered under the Securities Exchange Act of 1934.

2. The company's independent certified public accountant must have compared the data used by the company in the financial test which is derived from the independently audited, year end financial statements for the latest fiscal year, with the amounts in such financial statement. In connection with that procedure, the licensee shall notify the Department within 90 days of any matters coming to the attention of the auditor that cause the auditor to believe that the data specified in the financial test should be adjusted and that the company no longer passes the test.

3. After the initial financial test, the company must repeat passage of the test within 90 days after the close of each succeeding fiscal year.

C. If the licensee no longer meets the requirements of Section II.A, of this appendix, the licensee must send immediate notice to the Department of its intent to establish alternate financial assurance as specified in the Department's regulations within 120 days of such notice.

III. COMPANY SELF-GUARANTEE

The terms of a self-guarantee which an applicant or licensee furnishes must provide that:

A. The guarantee will remain in force unless the licensee sends notice of cancellation by certified mail to the Department. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by the Department, as evidenced by the return receipt.

B. The licensee shall provide alternative financial assurance as specified in the Department's regulations within 90 days following receipt by the Department of a notice of cancellation of the guarantee.

C. The guarantee and financial test provisions must remain in effect until the Department has terminated the license or until another financial assurance method acceptable to the Department has been put in effect by the licensee.

D. The licensee will promptly forward to the Department and the licensee's independent auditor all reports covering the latest fiscal year filed by the licensee with the Securities and Exchange Commission pursuant to the requirements of section 13 of the Securities And Exchange Act of 1934.

E. If at any time, the licensee's most recent bond issuance ceases to be rated in any category of "A" or above by either Standard and Poors or Moodys, the licensee will provide notice in writing of such fact to the Department within 20 days after publication of the change by the rating service. If the licensee's most recent bond issuance ceases to be rated in any category of A or above by both Standard and Poors and Moodys, the licensee no longer meets the requirements of Section II.A, of this appendix.

F. The applicant or licensee must provide to the Department a written guarantee (a written commitment by a corporate officer) which states that the licensee will fund and carry out the required decommissioning activities or, upon issuance of an order by the Department, the licensee will set up and fund a trust in the amount of the current cost estimate for decommissioning.